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1835







CHEMICAL
AND MEDICAL RESEARCHES

ON

KREOSOTE,

Its Preparation, Properties and Use.

BY E. MIGUET,

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MUTUELS" OF THE SAME CITY.



TRANSLATED FROM THE FRENCH,

BY WILLIAM WETHERILL, M. D.

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TRANSLATOR'S PREFACE.

As Kreosote, now prepared in this city, has created some excitement, and many in the use of it are experimenting, uncertain of the strength required, or to what diseases it is applicable, some information of cases in which it has been used, is at this time desirable; and as the following work has been published in France, communicating valuable information of its discovery, properties, and preparation, with a great variety of cases in which it has been tried, both in Germany and France, being the fullest account of its use yet received, I have been induced to give it as careful a translation as possible, with the object of affording the opportunity of trying it in corresponding cases; believing, that should the same results be confirmed, this preparation will make a valuable addition to our pharmaceutic agents.

WILLIAM WETHERILL.



P R E F A C E.

WHEN a new medicinal preparation makes its appearance, it soon finds violent panegyrists, and many ready to cast obloquy upon it. Quackery is exercised so shamefully on public credulity by the pompous names given to substances, the virtues of which in general are but doubtful, that the conscientious practitioner is cautious against all medical innovation. This scepticism has become necessary, since the journals are daily filled with pompous praises in favour of many medical substances which have been mentioned, time out of mind, in our dispensaries, and others in which the fecula of potatoes, or the chocolate nut are the principal constituents. The most inert powders are extolled and highly spoken of, by men unacquainted with the art of healing, having no fixed establishment for their sale. Men of sense laugh at such impudent shamelessness; but the credulous, confiding in what is told them, judge blindly, and being governed by others, are caught by the bait.

The interest which the informed are at this time taking in Kreosote, and the researches which have multiplied themselves from all directions, have been a sufficient motive to determine me to make this article the subject of my especial study; but above all, I feel it my duty to cast off prejudice, and set aside systems, in conformity with the precepts of Bacon, who looked upon a patient as being in great danger, when a physician approached him with a fixed system in his head.

I do not wish to write a panegyric upon, nor do I wish to detract from the virtues of Kreosote; I do not say, as Berkley speaks of the wonderful virtues of the water of tar, of which this is the active principle, that it cures all diseases; I should be in as ridiculous a situation as the poet, of whom Horace has so pleasantly said,

"Quid dignum tanto feret hic promissor hiatu."

My intention is to offer a series of facts, calculated to make clear hereafter its administration by the light of experience; to this end,

I shall report faithfully the facts stated by the German physicians; also, the result of the experiments of the physicians of France, to which I shall add such as have been tried by myself.

Thanks to the efforts of M. Lemire and Billard, who have obtained pure Kreosote, by aid of the long and complicated process of the chemist of Blansko, practitioners, (putridity hereafter being abandoned,) have many researches to make, by means of which it will be more easy to prove in an exact manner the effect of this medicine, for in medicine, as the Baron of Verulam says, experience is the demonstration of demonstrations; it is the mother of systems, and its works have always been the verification of principles. In short, in science, as in the arts, there is not, nor can we have any true axioms but those founded on experience itself.

The principal sources from which I have drawn for compiling, are the translations of the memoirs of "M. Reichembach, by M. Vallet, pharmacien at Paris," and some pieces in the "Bulletin Général de Thérapeutique," published under the direction of M. Miguel.

Allow me to express my gratitude to Martin Solon; from his lessons I have drawn the most learned precepts, and in discourses, the counsel of a teacher and a friend.

I cannot conclude without remembering my friend M. Letertre Valliere, pupil at the hospital of Beaujon; all thanks for his kindness in aiding me in the researches of many of my observations.

Chemical and Medical Researches

ON

KREOSOTE.

THE name of Kreosote is derived from two Greek words, (*κρέας*, flesh, and *σώζω*, I save, or preserve,) signifying a preserver of flesh, being a substance recently discovered by M. Reichembach, first in pyroligneous acid, and more lately in all kinds of tar. This well informed man, whose works deserve an honourable place among those of the chemists of Germany, obtained, some time before, by dry distillation of organic bodies, parafine, eupione and picamore substances, which until this time, excited but little interest. But Kreosote seems destined to enjoy much greater notoriety, not owing so much to its chemical properties, as to the number of therapeutic cases to which it is applicable, and its use in domestic economy. As to its virtues in this double capacity, we have the testimony of the highest authorities in Germany.

At the time M. Reichembach first commenced the discovery of Kreosote, his fingers were deprived by it of their epidermis. This energetic action on organic matter, having made him believe that this was the preserving principle in pyroligneous acid, experiments with it confirmed his conjectures. The antiseptic action which it exercised on dead animal matter, made him presume, that placed in contact with living tissue, against which we are often exercised to counteract mortification, it would be of much service as a therapeutic agent. He says the water of Benelli was unknown to him, and that his experiments were entirely independent; also, that they were not directed towards the suppressions of hæmorrhages, which constitutes a special property of this preparation. At this time, he was not aware that Kreosote possessed the property of arresting

the flow of blood; his attention was only devoted to suppurating sores of a bad nature, and chronic diseases, from which his experiments brought him to the conclusion, that in all suppurations, Kreosote possessed properties, healing, specific and energetic, without producing any unpleasant effect; he says he was not disappointed also in the treatment of wounds.

The water of Benelli, of which I have spoken, has enjoyed during many years a colossal reputation in Italy, sometimes under the name of the Balsamic Arterial Water, because it was said to arrest the most serious internal and external hæmorrhages, and sometimes called the water of Benelli, from the name of the discoverer. M. Schweigger Seidel has compared it with the water of Kreosote; and believes the Kreosote is the active agent in this liquid for checking the flow of blood, but that it is a very weak solution of this substance. Thus it does not astonish us that the effect of the water of Benelli was contested by many physicians. The chemical examination of it agrees with the experiments made by Doctor J. Davy upon animals. Every hæmorrhage was not arrested, and compresses, wet with it, applied to the wound, seemed as ineffectual as if common water had been used; from which Doctor Davy concludes, that all he could say in favour of this liquid was, that it was perfectly harmless.

PHYSICAL PROPERTIES.

Kreosote is a colourless, transparent liquid; its consistence is oleaginous; it has a disagreeable, penetrating odour, resembling smoke, or rather like smoked meat; its taste is burning and very caustic. It is possessed of great refrangibility; its specific gravity is 1.037, under an atmospheric pressure of 0.722, and at 20 degrees of Celsius.

CHEMICAL PROPERTIES.

Submitted to the action of caloric, it boils at 203 of Centigrade, and is not congealed even at the temperature of 27 Cent.; it burns with a smoky flame; it is not a conductor of electricity.

It forms with water at 20 degrees, two different combinations; one is a solution of one part and a quarter of Kreosote in 100 parts of water, which makes one part of Kreosote to 80 of this liquid; the other, on the contrary, is a solution of 10 parts of water in 100 of Kreosote.

The aqueous solution of this substance does not change the colour either of tournsol, or curcuma, and is not neutralized either by acids or alkalis. It forms, however, a number of interesting combinations with these two classes of bodies. Nitric acid attacks Kreosote actively, and a disengagement of red vapours takes place. It combines with chlorine, bromine, iodine, phosphorus, and sulphur. Potassium thrown into Kreosote is dissolved; there then takes place a disengagement of gas, and potash is formed, which remains combined with thickened Kreosote. This substance can be separated without any alteration by distillation. Concentrated sulphuric acid, in small quantity, colours Kreosote red; a larger quantity blackens and thickens it: the sulphuric acid is decomposed and the sulphur left free.

Of all acids, the acetic has the strongest affinity for Kreosote; it seems to be its proper solvent, and combines with it in every proportion.

This substance forms cold with potash two combinations: one is an anhydrous liquid, of an oily consistence; the other, a hydrate, which crystalizes in pearly white spangles. Even carbonic acid separates Kreosote from these combinations without alteration; its action is the same with soda. It has a great affinity for lime and the hydrate of barytes, and gives with these bodies compounds of a dingy white colour, soluble in water, and when in a dry state, may be made into powder of a pale rose colour. Ammonia dissolves it cold; this alkali generally accompanies it, and gives some trouble in its separation. It dissolves a vast number of salts, some hot, others cold. Alcohol, æther, carbonate of sulphur, eupione, acetic æther, combine in every proportion with Kreosote.

Of all organic substances, the resins, the resinous colouring principles, and other like bodies, are most actively attacked by Kreosote. It decomposes them even cold, as well as dissolves them totally. It forms cold a solution of a yellow red colour with cochineal, a deep red with dragon's blood, yellow with madder, yellow with saffron. Placed in contact with indigo, it dissolves cold, the colouring matter which is precipitated by the addition of water and of alcohol.

It now remains for me to mention other properties of Kreosote of the highest interest, because it is on these that rest all its therapeutic importance.

Kreosote agitated with the white of an egg, coagulates it imme-

diately; a property on which its efficacy is rationally founded; if in a large quantity of an aqueous solution of this last substance, we put a single drop of Kreosote, it is immediately filled with coagulated albuminous pellicles. When fresh meat has been placed for an hour in a solution of Kreosote, after having been well dried, it may be exposed to the heat of the sun without putrefaction; it becomes hard in about eight days, and assumes an agreeable odour of good smoked meat, its colour being reddish brown. Fish may be preserved by the same process; many birds killed by Kreosote were preserved for a month and a half without having any unpleasant smell. I have now one remaining which is completely dry, never having presented any indication of putrefaction. But as pyroligneous acid and tar water produce the same effects, it cannot be doubted that Kreosote is the preserving antiputrid principle of these liquids, and also of smoke.

It would be interesting to know how Kreosote acts under these circumstances, and presuming it was upon the blood, what reaction takes place. M. Reichembach has placed Kreosote successively in contact with the serum, the coagulum, the colouring matter, and pure fibrin, and has concluded from his experiments: 1st. That Kreosote coagulates the albumen of the blood. 2d. That this coagulation takes place immediately, when the two liquids are concentrated. 3d. That it takes place little by little, when one or the other is in quantity. 4th. That the fibrin separates itself from the other principles, and is not attacked by Kreosote. But it is said that the albumen which is coagulated will not putrefy, and the muscular fibre alone does not appear susceptible of entering into putrefaction.

Physicians were acquainted with the medical properties of pyroligneous acid, of animal oil, and of the empyumatic water of Dippel, which has been recently discovered. M. Reichembach thought that it was the Kreosote in these preparations that gave them their medical properties, and having made experiments with this substance, concentrated and dilute, his success far exceeded his expectations.

The foregoing shows to how many uses this substance is applicable. It would be desirable only that its preparation might be simplified, which is tedious and difficult. Two processes have been pointed out, one to extract the Kreosote from pyroligneous acid;

the other, for extracting it from tar. I have no doubt the last process will furnish the greater quantity, and the extraction will be more easy.

PREPARATION.

Tar is produced from the dry distillation of organic bodies, beach wood, for example; this is distilled in an iron retort, until the residue has the consistence of black pitch. Care must be taken not to prolong the distillation, because the residue would again be carbonated, which would introduce into the liquid empyrumatic products, from which we are desirous to free it by this first distillation. The liquor caught in the receiver contains an acid empyrumatic water, which is to be rejected, and an oil, called oil of tar, which is afterwards placed in a glass retort, and rectified; it is requisite not to continue the distillation to dryness, and to reject the acid water again taken in the receiver. In these two distillations, the oil of tar, which first passes over at a low temperature, is light, though unequally so; but its gravity increases by heat. Attention is requisite to the time when the oil passes to the bottom of the water; all above this liquid contains but a small quantity of Kreosote; it contains principally eupione, with other different light substances, affecting the purity of Kreosote; all this supernatant liquor should therefore be rejected. In this state, the oil of tar is of a yellow pale colour, heavier than water; it becomes brown by exposure to air; its smell is disagreeable; its taste is acid, caustic, sweet, and bitter at the same time: it is then heated and agitated with carbonate of potash, until when shaken it no longer disengages carbonic acid; it is then decanted, in order to separate it from the solution of acetate of potash, which is formed, and it is again distilled in a glass retort. The distillation must not be continued to dryness, and all the first products which float on the surface of the water must be rejected.

The oil must then be dissolved in a solution of caustic potash, of the specific gravity of 1.12, much heat is disengaged; part of it is formed into eupione, &c., and is not dissolved: it swims on the surface and must be taken from it. The alkaline solution is placed in an open vessel, and brought slowly to ebullition. It absorbs with avidity a considerable quantity of oxygen from the air: an oxydizeable principle which is found in it is decomposed by this absorption, and the mixture becomes brown. After cooling, by expo-

sure to air, weak sulphuric acid is to be added, until the oil is set at liberty.

It is now distilled with water, to which a small quantity of caustic potash is added; this is necessary, to prevent the Kreosote from dissolving, and the loss of distilling over again and again the water which comes over; though the water is kept in strong ebullition, yet the operation advances but slowly: Kreosote being but slightly volatile even at 100 degrees of Cent.; but after some time, though we yet see much oil in the matrass, the quantity passing by distillation has much diminished, and increasing the fire does not advance the process, this is the time for stopping this distillation. The residue contains picamore, a small quantity of this substance carbonated with potash, sulphate of potash, a small quantity of acetate of the same base, and the colouring principle.

The oil in the receiver, is to be separated from the water which has passed over with it, and is to be dissolved a second time in a solution of potash of the specific gravity of 1.12. There yet remains a considerable quantity of light oil which will not dissolve, formed of eupione, &c., which should be rejected. It is then again heated slowly in a vessel open to the air, to ebullition, and suffered to cool gradually. It again becomes brown, but much less so. Sulphuric acid must again be added, and care must be taken this time to add it a little in excess, because the oil itself absorbs a small quantity, and afterwards it is to be frequently washed in cool water, until it is no longer acid. The distillation is to be repeated with water, to which now no potash is added, but a little phosphoric acid, in order to deprive the oil of the ammonia, which is yet retained.

Again, you proceed to the third solution of the oil in caustic potash. If the precautions pointed out have been well observed, these bodies will now combine without leaving a residue of eupione: and the mixture heated in the open air does not become brown; it only assumes a slight red tint. It is clear, however, when eupione and brown colouring matter, may still be separated by alkaline solution, making it necessary to repeat, a sufficient number of times, its solution in potash. In this state, though the Kreosote is not pure, yet it may be employed thus for medical purposes. In order to purify it, it is necessary first to distil it with water; without any addition afterwards rectify alone the product of this distillation, which is only a hydrate; at first, much water passes over into the receiver; while the same heat is continued its quantity decreases, little by little, and at last stops altogether; a small quantity of Kreosote distils at the

same time ; all the first products ought to be rejected, and the Kreosote should not be collected until it distils purely without water, but yet when the heat is raised to 203 Cent. The last result may be improved, by again once rectifying the product of this distillation and making the vapours pass over chloride of lime.

This preparation, the operations of which required so much attention, and were so tedious and complicated, M. Reichembach wished to simplify by means more expeditious ; but Kreosote obtained in this manner excited violent vomiting when administered internally, whilst at the same time its action on the skin was considerably weakened. This effect was attributed to a particular substance contained in this impure Kreosote, which possessed emetic properties to an alarming degree. In fact, a single drop applied on the tongue, brought on in one minute great nausea accompanied with trembling ; the face became flushed, the eyes fixed and protruded ; these were followed by violent vomiting, after which the most complete prostration took place. M. Reichembach, satisfied that he could not in this manner prepare Kreosote with security, without first depriving it of this emetic principle, found himself obliged to recur to his original method, which he recommends to observe with conscientious fidelity, if it is wished, not to bring suffering on the sick, and cast his medicine into discredit.

PHYSIOLOGICAL PROPERTIES.

If permitted, I will enter into some physiological digressions. I believe it necessary to have information of pathological facts, which we should follow ; they may lead to important deductions in medical jurisprudence.

Kreosote applied to the tongue excites violent pain ; this organ seems contracted ; it does not present either redness or tumefaction : if the Kreosote is pure, it is the seat of the most violent burning ; you are also sensible of a smoky taste, which extends over the whole cavity of the mouth, invades the pharynx, and penetrates as far as the nasal cavities ; when placed upon the skin, it causes a sensation analogous to that of a slight burn ; it excites rubefaction, and an erosion of the epidermis, which splits and falls off in little rough scales.

Plants die when watered with a solution of Kreosote. A young rose bush, full of vigour, and ornamented by a great number of buds and one rose just in bloom, was thus killed. The first five or six

waterings did not produce any appreciable modification of its external appearance; but scarce the eighth day had passed when it withered. I have placed drops of the same solution on a rose of lively and bright redness, immediately its bright colour became pale, and after a short time it turned yellow: the leaves of the same rose bush, of a remarkable verdure, submitted successively to the same alterations.

I threw into two ounces of water, holding in suspension twelve drops of Kreosote, some flies, a spider, and little fish; they did not live more than two minutes after their immersion. This poisonous action is probably owing to the same property which causes Kreosote to preserve flesh from putrefaction, being the same which coagulates albumen. The plants and animals of which I have spoken, perished no doubt from asphyxia; that is to say, by a suspension of the circulation; there was evident absorption of Kreosote by the respiratory organs and by the cutaneous system. However small the quantity of the substance absorbed, it was more than sufficient, considering the smallness of the animals, to diminish the liquidity of the blood, and to render it incompatible with the mechanism of circulation, and of course, of respiration.

A young dog, two months old, was able to take with impunity, during eight days, eight ounces of distilled water containing four drops of Kreosote. During the eight days following, I administered double the quantity; the following symptoms then became evident: he walked slowly and with apparent pain, frequent nausea, intermittent trembling, and in a few days perceptible falling away. The use of the Kreosote was suspended, and all the functions resumed progressively their healthy state, and in a short time he recovered.

But administered in the dose of two drachms in half an ounce of water to another young dog, it caused the most alarming symptoms. The digestive power of the stomach was immediately followed by complete muscular prostration; the head was inclined towards the ground, on which he frequently laid; deafness, vertigo, his looks were fixed; all the senses of the animal seemed wrapped up in a profound torpor; he took no notice when called, and was indifferent when caressed by the hand: but what most struck me, was at the end of about three minutes, respiration which was troubled in the beginning, was suddenly almost intercepted, by a considerable quantity of viscid mucous filliments much thicker than in a natural state, which obstructed the superior opening of the larynx; the dog was

then seized with a violent cough, convulsive startings, which were much augmented by the discharges already abundant of frothy saliva, which formed on each side of the lower jaw salivary globes the size of a chicken's egg; the respiration was short, whining and interrupted; the breath hot; to all these phenomena were still joined, eructations and nausea, accompanied with violent spasmodic retraction of the abdominal muscles, and vomiting of a milky matter;* he remained about two hours in this painful situation without much alteration, but the symptoms by degrees were aggravated to such an extent as to threaten suffocation; respiration became more and more laborious; the intervals between expiration and inspiration were much longer; the limbs were seized with trembling, afterwards with contraction, and then followed the suspension of the exercise of all the functions.

Post mortem examination, which was immediately made, demonstrated to me some very remarkable organic injuries. Every tissue, except the liver, exhaled strongly the smell of Kreosote. The mucous membrane of the alimentary canal showed almost throughout its whole extent, traces of inflammation; it was spread over with red spots, some large, others small. The matter contained in the stomach, when placed in contact with the white of an egg, immediately coagulated it; by heating, a dense smoke was produced, having the decided smell of Kreosote; these appearances seemed to me sufficient to establish the presence of Kreosote in cases of poisoning, and I did not try it by any re-agent.

The cavity of the heart contained three or four small clots of red and clear blood. In those vessels near the centre of circulation, the blood seemed to have coagulated in a greater degree than under ordinary circumstances.

The lungs, for the most part, were filled with reddish brown blood; those parts which were of a light red colour, floated on water in which they were placed: those of a deep red, descended slowly to the bottom, and were with difficulty again brought to the surface.

The brain offered no signs either of congestion or hæmorrhage.

A mixture of equal parts of water and of Kreosote, injected into the carotid artery of another young dog, produced nearly analogous effects, only the termination was much more immediate.

* He had taken no nourishment since the night previous.

Blood, treated with either pure or diluted Kreosote, thickens on becoming of a brown red colour; it is also spread over with small white spots of coagulated albumen, which, by exposure to air, become of a yellow red colour.

To what are we to attribute the death of animals killed by Kreosote? is it to inflammation or coagulation of the blood? It seems to me to possess an equal power in the production of symptoms; for the rest, experience must decide. Might not Kreosote have a special action upon the nervous system which has escaped our means of observation?

From the foregoing, it follows:

1st. That Kreosote exercises an action essentially deleterious to the animal economy.

2d. That, given in a weak dose, it has relieved much functional derangement; whilst diffused in two or four times its weight of water, its effects are immediately mortal.

3d. That it acts by irritating the surfaces on which it is applied.

4th. That poisoning by this substance may be established by the redness of the mucous membrane of the stomach and intestines, by the thickness and peculiar colour of the blood, by the property which the alimentary matter has of coagulating the albumen of the egg, adding as an essential character, the smell *sui generis*, which is exhaled from every tissue exposed to investigation.

THERAPEUTIC PROPERTIES.

Having to relate the results obtained from the use of Kreosote in Germany as well as in France, I must, to establish its progressive course, give the starting point of this new agent, by calling to mind, in a few words, the credit which the water of tar has had for about a century.

We read in James' Dictionary of Medicine, that an oil has been extracted from tar, which, from the great virtues attributed to it, has acquired the name of balm of pitch; moreover, when turpentine is distilled by a slow fire, there arises an acid spirit which mixes readily with water; an agreeable acid spirit, which is extremely cooling, diuretic, sudorific, and balsamic; a good preservative against warts or excrescences.

As to the pure and simple oil of tar, I will mention what George Berkley, Bishop of Cloyne, says of it: he thought the water preserved against small pox, and that all those who drank it in time,

escaped the contagion; that it cleared the voice, made healthy the constitution, exhilarated the spirits in cases of melancholy, and corrected the acrimony of the blood.

Following these arguments, at the same time earnest and logical, Boerhaave assures us that scurvy causes pleurisy, colic, malignant and putrid fevers, &c., and that the water of tar will cure the scurvy, consequently it would cure all the other diseases. Some authors believe that erysipelis and plague differ from each other only in degree, but I have seen this water cure erysipelis; it ought then to cure plague.

The Bishop of Cloyne, in his enthusiastic praise of tar water, recommended it as very salutary for sailors and all seafaring men, frankly avowing that he thought it a panacea, and that in the hope of obtaining for the human race the adoption of a remedy by which he had cured thousands of individuals, he would willingly suffer all kinds of ridicule; and as the ancient philosopher who cried from the housetop to his fellow-citizens, “mind and bring up your children well,” I wish, said he, I was able to place myself sufficiently high, and had a voice strong enough to cry to all the infirm—Drink the water of tar!

Who is not sensible, that whatever is ridiculous is equally enthusiastic? But in taking the part of exaggeration, and leaving the side of reason, it is more than singular that the Bishop of Cloyne, on the *modus operandi* of this substance, should not have overlooked the basis of these observations, but rejected it without previous examination. Is it not astonishing, that a medicine formerly of such great repute, should have fallen almost into complete disuse?

Doctor Caster avowed, that when reading the works of Berkley, he was so struck with the praises bestowed on the water of tar, he could not avoid thinking of the collection of cures almost miraculous. On this account, for two years previous to the discovery of Kreosote, he made use of it in a number of cases. He assures us this medicine is a great discovery, of which he has learned to appreciate the good effects, above all, in the convalescence from cholera.

Berkley, however, was not the first who extolled the virtues of the water of tar. The ancients, among whom we will mention Aretus, Cœlius Aurelianus, &c., assigned to it analogous properties: *Astimaticas et purulentes adjuvat*, said Galen, *abstergendi vim habet, glutinendis vulneribus aptior*. It is said that Hippocrates sent

his phthysical patients to breathe the atmosphere of some of the islands of the Archipelago.

At the time M. Reichembach discovered Kreosote, and when he thought he had confirmed by experiments the medical virtues which he first believed it to possess, he communicated his first observations to the physicians of Vienna, who received them with but little favour; this did not deter him from following with ardour the examination of his new medicine. His situation for attending to these experiments was not very advantageous. There was not, for many miles around him, a physician sufficiently scientific to write a rational direction to his experiments, follow critically their results, and arrange properly the observations. Nevertheless, with the assistance of a surgeon from the country, and an apothecary, he was enabled to operate in a certain number of remarkable cures.

The first trials were upon light burns, on chaps in children, and on wounds; the success obtained, induced him to try it for itch, for chronic eruptions on the skin, for corroding ulcers, gangrene, white swelling, caries, the tooth-ache, trumatic sores, every kind of ulceration, cancerous and syphilitic, and even in phthisis pulmonalis, this scourge so redoubtable against even the most robust youth, was made to succumb to the use of Kreosote, in the cure of which, according to the report of M. Reichembach, he was successful beyond all hopes.

We will now give many cases of diseases treated with success by Kreosote, communicated by M. Reichembach, and desire the reader to attend to the matter of the subject, and not to the compiling.

BURNS.

Observation 1. A domestic at Blansko, burnt her arm with a hot iron. The burn was five inches long and two wide; it was at first treated with a solution of acetate of lead, and passed to suppuration; it was then dressed four times a day by an application of a linen cloth, in which was imbibed a weak solution of Kreosote; it at first produced smarting, the suppuration soon ceased, in three days the inflammation disappeared, and in eight days it healed.

Observation 2. Another domestic at Ernsthall burnt herself with boiling water; she was also cured in three days by the water of Kreosote.*

* The water of Kreosote is a solution of two parts of pure Kreosote in one hundred of water.

Observation 3. A wagoner at Ober Lotha burnt his knee with hot water; Kreosote water also healed it in a short time.

ITCH AND TETTER.

Observation 4. The daughter of a peasant, at Blansko, seventeen years of age, had a kind of itch on the hands; she was washed during eight days with the water of Kreosote; the diseased skin raised itself in scales, and the itch disappeared.

Observation 5. An infant, at Blansko, was covered over the whole body with a chronic eruption; it was washed with the water of Kreosote and healed.

Observation 6. A domestic at an inn, thirty years of age, had a decided itch on the hands, fore-arms, and the feet; he had been troubled with it a long time; purgative medicine was given, and he was washed with a solution of Kreosote; he got better but slowly; the use of pure Kreosote was then tried on the diseased parts, at the same time, an ointment composed of Kreosote and hog's lard was laid upon the itchy pimples; these soon scaled off, and the disease was healed in eight days.

Observation 7. The judge of Blansko was tormented for a long time by a syphilitic itch. Physicians had employed mercury almost to salivation; the decoctions of sarsaparilla, china-root, the itch ointment, &c., all had been useless. The parts were then washed for fourteen days with water of Kreosote, at the end of which time, the healing not being complete, the Kreosote itself was put upon the pimples; at the end of eight days he could resume his occupations, and in three weeks was completely cured.

Observation 8. A domestic, at Habrowka, thirty-two years of age, had for nine years a scaly tetter on her hands and arms. During this time it disappeared once, (during pregnancy,) but again returned; she first used the water of Kreosote, afterward the pure was rubbed over the whole diseased surface; it excited general irritation, after which the healing took place with disquamation. She then returned to service, and has now been nine months in perfect health.

Observation 9. A female of Keritien, forty years of age, had on her face for two years a painful running tetter, also affecting her sight; the ordinary means had been resorted to without effect; she was washed several times with the water of Kreosote; swelling followed which soon disappeared; the disease became dry, scaled off, at the end of eight days was healed, and her sight restored.

CHAPS.

Many children have chaps, which we cannot cure by using the powder of lycopodium; it is only necessary to wash the part a few times with the water of Kreosote.

GANGRENE.

Observation 10. A mason, at Daubrawiz, was so lacerated by a compound fracture, that from his hip to the knee all the skin was gangrenous; the gangrene had already penetrated to some depth. Applications of Kreosote were made, and the disease partly healed; but the patient not being able to leave his bed on account of the fracture, died in consequence of it.

CARIES.

Observation 11. The child of a carpenter at Daubrawiz, eight years of age, had near the nail of the great toe a carious ulcer which had continued a long time, affecting the bone; water of Kreosote was applied and renewed several times a day; in five weeks it was healed.

Observation 12. A little girl, of Daubrawiz, seven years of age, and a boy in the same neighbourhood, of five, had both carious ulcers of the feet; they were cured in the same manner.

TOOTH-ACHE.

Observation 13. A woman, at Ober Klepaczow, thirty years of age, had continued pain in a hollow tooth; cotton, in which Kreosote was imbibed, was forced into the cavity; the pain was immediately relieved. The same experiments were often repeated with like success, and the tooth-ach was thus immediately relieved in so many cases, that the effect of this substance cannot be too highly recommended. Often it is sufficient to gargle with the Kreosote water, but it is more certain to put a drop of pure Kreosote in the hollow of the tooth, previously cleaned out. Persons who had been tormented by pains in the teeth for years, were immediately and completely relieved. We may hope that caries of the teeth may be prevented by Kreosote: but the experience I have gained at present in this respect, being only from the use of it for about six months, and not being confirmed by time, I do not yet wish to express.

Observation 14. A domestic, at Laschan, suffered with a den-

tal fistula; Kreosote was put into the opening, and the disease disappeared.

WHITLOW, OR FELON.

Observation 15. A journeyman, at Palawa, forty years of age, had an open whitlow on his finger of a bad nature, it had been opened by incision; he was made to apply water of Kreosote mixed with the pure Kreosote, which was renewed five or six times a day; it was cured in three weeks.

Observation 16. A workman at an instrument manufactory in Blansko, twenty-seven years of age, had also on his finger a suppurating whitlow which caused the loss of the nail; treated with Kreosote the inflammation subsided, the ulcer dried, and the finger was healed

SCROFULOUS ULCERS.

Observation 17. A founder, at Rudix, thirty-six years of age, had a scrofulous ulcer on the neck, and continued discharge from the ears; he took internally golden sulphur, with aloes and rhubarb; an ointment of Kreosote was put upon the ulcers, and the water of the same substance injected into the ears; the ulcers healed in three weeks, and the discharge from the ears stopped.

Observation 18. A peasant, at Ober Lohta, had for three years a scrofulous ulcer on his face; the glands of the neck had become as large as the egg of a chicken; there was an ulceration on the cheek three inches wide, and half the nose was destroyed; mercury, hemlock, and other remedies had been tried. He was washed with the water of Kreosote, and a compress wet with the same liquor applied; on the edges of the sore pure Kreosote was used. The discharge of blood immediately stopped, the suppuration dried up, the glands returned to their natural state, and healing soon took place.

Observation 19. A journeyman joiner, of Raix, had for nine months an inveterate ulcer occupying the whole leg, which had inflamed the foot. He was washed for six weeks with the water of Kreosote, and completely healed.

Observation 20. A tavernkeeper, at Ober Lohta, forty years of age, had on his heels two holes, which came of themselves, penetrating to the bone, and suppurating continually. Lint wet with the

water of Kreosote was put into the sores, and renewed several times a day. The disease was cured in fourteen days.

ULCERATED WHITE SWELLING.

Observation 21. A servant, at Babiz, had below the tuberosity of the tibia, a carious ulcer with continued suppuration, accompanied with a considerable white swelling of the knee. She had suffered from the complaint for two years. The patient was emaciated, and in a state of marasmus; she had already been under the cure of many physicians. Lint wet with Kreosote water was placed in the bottom of the wound, afterwards pure Kreosote was used. The swelling decreased, and the diseased part exfoliated. The young girl got well, recovered her healthy appearance and married.

An experiment was then made of administering Kreosote internally. A person in health may take mixed with gum water four drops of pure Kreosote without danger.

HÆMOPTYSIS.

Internal use of Kreosote.

Observation 22. A workman, at the forge of Blansko, who it was believed was afflicted with pulmonary consumption, complained for many years. It was principally in spring and autumn he found himself most troubled with the cough and fever; he could not lie on one of his sides; at times his expectoration was green, purulent, and mixed with blood. Golden sulphur had been given him without effect. After he had been suffering for six days with an attack of hæmoptysis, we gave him for four days, from four to five drops of Kreosote with sugar. In twenty-four hours the spitting of blood ceased, the pain in the side left him, respiration became easy, the fever went off, and he was cured.

Observation 23. A tailor, of Lazaneak, sick for three months, suffered with a periodical hæmoptysis and fever; he could lie in bed only on one side. He complained of pain in the breast, his expectorations were purulent, and of a yellow green colour. He was looked upon as being afflicted with pulmonary consumption. We gave him during four days four drops of Kreosote with sugar; the expectoration was checked immediately after the first dose, and the complaint was cured without the use of any other remedies.

ULCERATED SYPHILITIC CHANCRES.

Observation 24. A domestic, at Ober-klepaczow, was for a year and a half affected with syphilis; her chancres and excrescences were first treated in secret without internal remedies, by applications of blue vitriol, the disease increased. Ulcers made their appearance over the whole body, secreting an irritating ichor; some of considerable size made their appearance on the legs, on the back, and about the ears. Her throat was so much diseased that her voice was almost lost; she had never taken mercurial remedies. We did not administer them, but simply washed with the water of Kreosote, and put compresses, wet with the same liquor, on the largest ulcers; soon the discharge thickened and ceased, the ulcers became dry, crusted, and fell off; the young girl recovered her health, her voice, and regained her natural strength. During the healing, she complained of an almost unsupportable itching over the whole skin.

Observation 25. A domestic, at Ollomauzan, was for three years afflicted with syphilis; she had tried for a long time to cure herself in secret by applications of blue vitriol; there were large chancrous ulcers on the neck and on the right and left tibia, with enlargement of the bones; she washed with the water of Kreosote and used it as a gargle. The cure was as rapid and complete as in the former cases.

WOUNDS.

All kinds of wounds made by knives, pointed instruments, or by caustic alkalies, have not suppurated when washed with Kreosote; they healed and dried up.

Some French physicians, desirous to ascertain for themselves the truth of these cases, advanced by the Germans, submitted this medicine to a new series of experiments. Let us see, if in their statements made in cases nearly analogous, we will find data sufficiently precise to confirm the assertions of the chemist of Blansko.

BURNS.

Doctor Berthelot has observed two cases, one of which is very remarkable.

Observation 1. A little girl, living at No. 22 Ecrivaine street, by a fall, brought her wrist in contact with a much heated frying pan;

a violent burn was the consequence; the epidermis, by the serosity, was elevated. Dressings imbibed with water of Kreosote were applied; on the following morning, those parts the least burnt were dry; the other part was covered over with a crust. The same dressings were continued for five days; no suppuration occurred; the crusts fell off, and the wound was entirely healed.

Observation 2. Miss Isadore, residing at No. 20, Heaumerie street, burnt with boiling milk the right temple, part of the ear, the cheek, the neck, and the back, as far as the loins. On the temple, the cheek, and on the neck, the burn was of the first degree; on the ear and on the back, it was of the second degree; lotions of water of Kreosote were used. Those parts burnt in the first degree healed in a few days without suppuration; those burned in the second degree were cicatrized in twelve days. The last parts became covered by a crust which raised itself, fell off, and left a glossy cicatrix, without either contraction or seams of the skin.

Observation 3. Doctor Goupel has well ascertained, by the employment of Kreosote in the treatment of burns, that it cures them rapidly, and without allowing suppuration time to establish itself.

Kreosote seems to fulfil many important indications in the treatment of these affections, by preventing or diminishing suppuration, which frequently destroys the life of the patient, sometimes by its great abundance, and sometimes by its long continuance; it prevents the colliquative discharges, of course, extreme emaciation and those fatal complications, against which the efforts of art are almost always insufficient. We will see below, it hastens the separation and loss of diseased parts, and can now admit it cleanses the burnt surface, and thus prepares the organization for cicatrizing.

It is known, in burns, as in other sores, cicatrization has a great tendency to pass from the circumference to the centre; by the too quick approach of the edges of the ulcer, parts are united which ought to have remained free. Kreosote seems to obviate these inconveniences; it has been observed, by employing this substance, the cicatrix presents fewer bridles and inequalities; because, without doubt, producing a more equal excitement over all parts of the sore, it enlivens the weak granulations, and favours organization and cicatrization as much in the centre as at the edges.

TETTER AND ITCH.

Observation 1. M. Berthelot cured a tetter the size of a two-

franc piece, on the left side of the chin, in eight days, by treating it with Kreosote.

Observation 2. Marrais was admitted into the hospital of Beaujon, on account of some remarkable venereal symptoms; he had a scurfy tetter on the left arm; he made application of compresses, wet with Kreosote; much burning was experienced. Two days after, the tetter had entirely disappeared.

Observation 3. A man named Lafosse, was admitted at Beaujon into Ward Saint Eloi, on account of a plethoric habit, which yielded promptly to venesection, attention to diet, and diluent drinks; he had from his childhood, an ichthyosis covering the body, except on the face, the hands, feet, organs of generation, and the internal part of the knees. During ten days, he tried sulphur baths, and rubbed himself with the following ointment, (hog's lard, $\bar{\zeta}$ ij.; sulphate of potash, ζ i.;) he experienced no change.

On the 17th of March, Martin Solon prescribed an ointment made with hog's lard $\bar{\zeta}$ ij., and Kreosote gtt. xvi., with which he rubbed the left limb, the body, but not the right leg; to it he applied simple hog's lard. At the end of three days he was evidently better on both sides. But the left leg healed most rapidly; the frictions were continued, and early in April, I saw him go out of the house completely cured.

Observation 4. At the dwelling of a lady, I succeeded in healing completely a case of crustacious tetter, situated on the right cheek, covering a space of about two inches; the patient had succeeded in curing, prematurely, a tetter of the same nature, which, for more than six months, had attacked the ear on the same side. The edges were of a lively red colour, the middle discharged a yellow ichorous suppurative liquid, various means had been employed without any success. I prescribed lotions of the water of Kreosote during the day and night, frictions of ointment of Kreosote were also used. These diverse applications only excited at first slight irritation, with a stinging sensation; soon a burning pain was felt, it became necessary in place of Kreosote to employ emollient cataplasms; in five days the suppuration was dried up, a yellow crust formed, soon fell off, and the cheek only exhibited the red colour of a recent cicatrization.

Observation 5. Lemonier, a thatcher, arrived from the port of Normandy; for two years a tetter invaded progressively the whole surface of the nose; it was of a lively red colour, presenting in

many parts ichorous exudations ; he had continued itching, rendered painful by the smallest quantity of spirituous drink ; small ulcerations began to make their appearance. I prescribed for him lotions and compresses of Kreosote : at first there was slight irritation, and afterwards an almost insupportable burning. Four days after the first application, the exudation diminished, small rough scales formed, detached themselves successively and only left slight redness. In eight days, healing was complete.

Observation 6. Doctor Goupil assured me, he in a short time obtained a most complete cure in a case of dry itch of the scalp, by lotions of Kreosote.

He cited two cases of chronic eczema on the fingers, terminating favourably by the employment of Kreosote, after having resisted all other means.

Observation 7. M. Coster has at this time under his care a young girl brought from Caracas, horribly deformed by a leontine leprosy ; he had the goodness to submit her to my observation. The following is the state in which I found her : all the body covered with tubercles, varying in size, indolent, livid and of a dark colour, without trace of sanguine determination, or increase of heat ; they were more numerous on the forehead, about the lips, which are thickened, about the nostrils, dilated by them, and about the ears, where the size was four fold ; the inside of the mouth was covered with fœtid ulcerations, the voice hoarse, respiration sterterous, and troubled. M. Coster made her take internally water of Kreosote, (a scruple of Kreosote to six ounces of water ;) compresses imbibed with it were also applied to the cheek, the nose and the chin. The first application excited redness and slight burning ; in two weeks the tubercles became the seat of a sufficiently abundant suppuration ; healthy granulations were developed, they were covered with a red coloured pellicle ; soon yellow thick crusts formed and fell off of themselves, leaving tubercles, the size of which had much diminished. A new suppuration, tended to destroy these small tuberculous masses newly formed. By treating thus successively all parts of the body similarly diseased, may we not hope to cure this horrible complaint that for two years resisted the most energetic applications.

M. Duchesne, Dupare and Dauvergne, made at the hospital Saint Louis, under the care of professor Alibert, numerous experiments on the action of tar ointment in cases of itch ; the ointment was

composed of two drachms of tar and one ounce of hog's lard. They came to the conclusion,

1st, That the application of tar ointment on the integuments affected by itch, calms in a very short time the itching ;

2dly, That the use of this ointment very rarely causes those accidental eruptions frequently excited by ordinary practice ;

3dly, This application, employed every day in proper quantity, (a half an ounce for two frictions, used morning and evening,) combined with a sulphur or alkaline bath every other day, generally cures the itch in less than ten days.

CHANCRES, AND CHRONIC VENEREAL ULCERS.

Observation 1. Two patients were afflicted with syphilitic ulcers large and deep, located in the interior of the mouth and on the tonsils; they had been treated unsuccessfully during five or six months by mercurial preparations. Doctor Kunckel healed them in six weeks, by employing Kreosote; he made them gargle three times a day with the water, and at the same time gave them as before, pills of the duto chloride of mercury. The circumstance of their taking the pills cannot destroy confidence in the effect of Kreosote, since for five or six months previously, under the mercurial treatment, they remained in the same state. The ulcers soon lost their bad appearance, and their progress towards cicatrization became manifest and rapid.

Observation 2. M. Berthelat had M. Lemarquand, in Saint Honoré street, No. 43, under treatment for a syphilis of long standing. For two months he could not obtain with mercurial ointment and nitrate of silver, the cicatrization of a chancre, with perpendicular edges, situated on the glans penis the size of a ten cent piece. It was then dressed with lint wet with water of Kreosote; at the end of three days a crust was formed, fell off on the eighth, and left the chancre entirely healed.

Observation 3. Lambquin, twenty years of age, was admitted into the hospital of Beaujon, on the 8th of January; he had a gonorrhœa and five chancres, four were disposed around the opening of the prepure, and the fifth on the frenum; the first four days he tried baths, and without benefit dressed his chancres with cerate. On the 13th, lotions were made with water of Kreosote; he experienced an excessive burning, which continued the greater part of the day. They were continued the following day. After each

washing the burning returned, but continued less time and was less violent. On the 20th, the chaneres disappeared, and he was treated for the gonorrhœa.

M. Lesseré, doctor of medicine and surgeon, No. 48, Montmartre street, has been so obliging as to give me a case in which he obtained astonishing success by means of Kreosote. The case is sufficiently interesting to be reported in detail.

Observation 4. Jean François Masson, a tailor, at No. 39, Manconseil street, forty-five years of age, temperament nervo-sanguine, at the age of nineteen, had a foul connection; six days after, five chaneres made their appearance on the prepuce, on a level with the edge of the glands on the right side; they disappeared after three weeks, under the influence of emolient baths and fifty mercurial pills, prescribed by M. Cullerier. He again had an impure connection; the following day was attacked with violent gonorrhœa, very painful, particularly in passing urine; during five days a solution of nitre and sal ammoniac was used, and the discharge suppressed; for fifteen months he believed himself well; after an excess at table he discovered on his right side two considerable glandular swellings, and two chaneres came eight days after their appearance, having their seat on the same side of the prepuce.

Masson was admitted into the hospital of Midi, in ward of M. Cullerier; during four months the liquor of Van Swieten was given him, except while under salivation, and during the presence of a number of aphthous sores in the mouth. The glandular swellings were opened with caustic potash and cicatrized promptly. He left the hospital; after about twelve months was attacked with continued excruciating pains in his bones, strongly exasperated by contusion. It may be remarked some years after he married, and his wife never had the disease.

On the 10th of September, 1833, Masson came to consult M. Lesseré; the uvula, the velum palati, and the tonsils on the left side, were covered with quite a deep livid ulceration, the edges perpendicular; the adjoining tissue was violently inflamed; deglutition of solids and liquids was difficult and painful; he had frequent dry cough, nausea and want of appetite. All had almost completely disappeared in twelve days, by means of tisans and appropriate gargles; he continued apparently relieved about ten days, when the disease suddenly returned, which determined Masson to consult M. Record, who made arrangement for him to go into the hospital of

Midi, and advised him to take in the mean time, some pots of barley water.

He again came under the care of M. Lesseré, who combated the inflammation by antiphlogistic means, during the month of December 1833, and touched the chancres from time to time with nitrate of silver; the principal character of the inflammation changed, but the chancres continued their ravages; they destroyed the uvula, the pendulum palati and the tonsils. He then used tisans with syrup of sarsaparilla, extract of parsley root, and 80 mercurial pills with opium, which only served to exasperate the pain in his bones. The chancres did not increase, but they did not diminish; the uvula was entirely destroyed. The months of January and February were passed without having been able to obtain a cure, which was prompt and easy by means of the water of Kreosote, applied on each ulceration, with a little dossil of cotton lint. This operation was repeated six or eight times, and in fifteen days the cicatrization was complete. This patient recovered rapidly under the influence of Kreosote, when other energetic means employed during several months had not produced the slightest amelioration.

Observation 5. Miss P——, No. 11, Taitbout street, twenty-five years of age, of a lymphatic temperament, was in the month of November 1833, attacked with gonorrhœa; she had deep ulceration of the mucous membrane of the meatus urinarius; for four months it had resisted all antiphlogistic, astringent, tonic, mercurial and antisymphilitic applications. M. Lesseré used the concentrated water of tar; in less than fifteen days it completely healed the ulceration.

Observation 6. In the month of March 1833, the same practitioner had occasion to employ the concentrated water of tar against deep ulceration of the neck of the uterus, that had resisted remedies of every description; in a few days cicatrization was induced, and no trace of ulceration could be perceived.

Observation 7. A young lawyer had upon the prepuce five chancres; for three weeks they had resisted the employment of stimulating, antiphlogistic and emollient applications. I saw them change their appearance under the influence of Kreosote: after the fifth dressing, cicatrization was manifest, the edges of the ulcers approached the centre, and in a few days healing was complete.

Observation 8. A man fifty-three years of age, having the humours corrupted, and afflicted with syphilitic ulcers on the alæ of

the nose, was relieved by the employment of various remedies. A month after the ulcers returned; they were five or six lines in diameter, the edges were callous and elevated, the external skin was of a violet colour, the bottom of the ulceration presented a gray appearance, and was the seat of lancinating pain. Martin Solon tried without benefit during some days, the application of an ointment of opium and calomel; there was no change in the appearance of the ulcer. It was then washed and dressed with lint in which Kreosote was imbibed, some burning was felt on the surface of the ulcer; the edges became flattened, the bottom became of a vermilion colour, and the cicatrization was complete in eight days.

From the want of success by the mercurial treatment in divers cases, I have concluded the active power of Kreosote seems clearly demonstrated. It is difficult to say what belongs to each of these medicines; but it will not be unreasonable to admit, Kreosote has powerfully contributed to the healing. In short, it is to be remarked, amelioration soon followed this application, whilst there was no relief under the influence of mercury. I do not deny the last may have produced some effect, but am led to believe it possessed only a secondary action; it produced no amendment when employed alone.

PHTHISIS PULMONARIS AND CATARRHS.

The advantageous effects obtained from the use of Kreosote in the treatment of some diseases, looked upon from the symptoms as phthisis pulmonaris, led M. Reichembach to this very simple reasoning; ought we not, as in external ulcers, ascribe to the action of Kreosote in pulmonary diseases, a tendency suitably proportionate, the same principles giving rise to the phenomena continuing? As Kreosote, says he, is a substance slightly volatile, shown by its penetrating smell, and still more by its evaporation in open glass vessels, I would inquire if it would not be useful to place patients with phthisis, in an atmosphere charged with the vapour of Kreosote.

Many believe fumigations are a modern discovery; from the results observed by the oldest physicians in natural modifications of the air, they have endeavoured to give to the atmosphere by artificial means, qualities they knew possessed a salutary influence. The father of medicine recommended the use of fumigation. Galen

prescribed against nocturnal cough, fumigations of styrax, of mastic, of laurel berries, &c.

Read and Triller advised patients with phthisis to breathe moist and warm air, exhaled from animals in stables; Marcagni thought if an efficacious remedy should be discovered for consumption, it would be among those substances applicable directly to the lungs by inspiration. Martin Solon, who published a very interesting memoir, entitled “*Considérations sur l’atmatrie pulmonaire*,” thinks, for phthisis it is the mode of treatment combined with means indicated according to circumstances, which ought to give the most advantageous results. He mentions two remarkable cases of phthisis in which pulmonary atmaitry performed an entire cure: for a more full account I must refer to the memoir in which Martin Solon resorted to the application of this remedy, under advantageous circumstances. I will here only present some facts, collected by myself in his service at the hospital of Beaujon. It is more suitable to my subject that the patients, furnishing these observations, were placed in the same room, (ward Saint Thérèse,) where an atmosphere of Kreosote was established.

Observation 1. In No. 158, of the ward Sainte-Thérèse, was admitted on the 6th of January, a female named Laurriere, thirty-five years of age, afflicted from the month of August, 1830, by a cold, sometimes more, sometimes less violent. She said for five days past she spit blood, and had become much thinner within a month; her expectoration continued tinged with blood, was nummulary and and riziformed; she experienced cold pain between the shoulders and at the epigastrium; had night sweats, pulse feeble, voice weak and low; on the left side some resonance was ascertained, and on the right rattling and pectoriloquy. Fifteen leaches were applied on the sternum with emollient cataplasms; some days after she was bled from the arm; oily pectoral julep given and fumigations of Kreosote tried. In three weeks a sensible diminution of the expectoration was remarked; it became more mucous and more adherent to the vessel; the sweats were less abundant, the febrile appearances subsided little by little; on auscultation, there was still on the left side resonance, and on the right pectoriloquy, but no more rattling. in this state she remained during the months of February and March. The expectorated matter always mucous, the riziformed concretions had almost entirely disappeared. Towards the last of March, M. Solon prescribed an oily julep, and a cough julep with

one drop of Kreosote; she complained soon after taking the julep with Kreosote, of a burning sensation in the œsophagus and a disagreeable smell of smoke; her expectorations were without pain, more easy with the Kreosote than the oily julep. At this time, April 15th, the matter expectorated is less abundant, without pain and merely mucous; the pectoriloquy has much diminished and the fever subsided. She says she is much better, and feels herself regaining strength.

Observation 2. Dombriski, thirty-four years of age, was admitted into the hospital of Beaujon, ward Sainte-Thérèse, No 163, on the 12th of March. The following symptoms presented themselves: digestive functions healthy, pulse weak, oppressive, cough painful, expectorated matter yellow, separated and nummular, auscultation demonstrated, on the right side, the presence of pulmonary caverns, some rattling and pectoriloquy, and on the left some whistling. Four days after her admission into the hospital, she became considerable better; the expectorated matter was less separated, less purulent and more glutinous, expectoration more easy, and much less febrile action. March 25th, the expectorated matter is spumous, adheres to the vessel and is less in quantity; the pulse is nearly natural, the cough and the oppression have almost disappeared. She says she feels strong, believes herself well, and obtained permission to leave the hospital.

Many other cases in which decided openings in the lungs were caused by pulmonary catarrh, presented analogous changes of expectoration.

Observation 3. M. Billard, pharmician at Paris, was for many years subject to frequent sore throat; in 1828 he was attacked with gastritis, which resisted all curative means and became chronic; a milk diet, continued during three months, gave him but little relief.

In 1830, when the influenza prevailed in France, M. Billard was one of the first attacked by this epidemic. His convalescence was tedious and difficult; since this time he had cough, slight in the beginning, but in the course of three months it assumed characters much more painful, complicated with serious gastric symptoms; digestion was slow and painful, the abdomen had a tendency to distension, respiration was noisy and laborious, a dull and continued pain was felt in the thoracic region, in the sides and between the shoulders; what he expectorated had a sour taste, was dense, puru-

lent, yellow, and overspread with streaks of blood. A rapid decay appeared to be the inevitable consequence of this complication of morbid phenomena. M. Billard tried country air, which only afforded slight relief; symptoms quite as distressing reappeared, two months after his return to Paris. He again resumed his milk diet with mucilaginous drinks, and left off the use of all kinds of meat and alcoholic liquors.

He had passed three years in this state, when the effect of Kreosote in pulmonary diseases was made known by M. Reichembach. The desire to submit himself to this new application, determined him to prepare it carefully.* For this purpose he constructed a laboratory, and in it finished purifying the Kreosote. He found himself in a much more favourable state, when the atmosphere of his laboratory was continually loaded with dense vapour of Kreosote, formed by frequently breaking the retorts placed on the furnaces; it is well to remark, however great the density of these fumes, he was not under any circumstance incommoded by inhaling them.

After he had occupied himself about fifteen days at this manufacture, he remarked in his situation decided amendment; the cough diminished and almost left him, the pain he had between the shoulders was eased, respiration was more free, the expectorated matter became more homogeneous, white and spumous; he regained his animation and strength, his appetite returned, he could take with impunity meats and liquors, such as he had not tasted for five years; in short, he now enjoyed perfect health.

The friendly relations existing for some time between M. Billard and myself, placed it in my power to observe the different periods of his disease.

I ought to end with the three preceding observations, but there yet remains a fourth, offering too much interest not to be mentioned.

Observation 4. At No. 162, ward Sainte-Thérèse, was confined to the bed, since the 13th of February, a young girl fifteen years of age, named Vanniére, of a weak constitution, and so decidedly scrofulous, that the bones themselves had undergone remarkable changes in their conformation. Her catamenia were irregular; she coughed since the month of March, 1833; her fingers showed evident tuberculous indications; she now feels, February 25th, stitches

* It is this pharmacien, M. Billard, who prepared the Kreosote which served to establish the facts contained in my memoir.

in the side, palpitation, want of appetite, and difficulty of sleeping ; to these symptoms are joined night sweats, febrile action, weakness and extreme emaciation, augmented by an excessive diarrhœa ; pectoriloquy was in the right cavity under the spine, no rattling ; nothing on the left side ; the discharges from the lungs are of a white yellow colour, nummular and separated ; the expectoration is painful. Six leaches were applied to the seat of the disease, fumigations of Kreosote were used, and cough julep. From the 14th to the 25th of February, the discharges from the lungs became more mucous, adheres to the vessel spit into, the cough is less frequent, the expectoration more easy, and the diarrhœa less abundant. She continued better during the whole month of March, except slight lassitude ; now, the early part of April, the matter spit up is less abundant, is homogeneous, very spumous, entirely mucous, and adheres to the vessel ; there is no more nummularia, the fever has diminished, the state of the respiratory organs have undergone a sensible amelioration ; but those of digestion have become more and more disturbed, the diarrhœa is of the most stubborn nature, the belly is painfully distended. On the 9th of April, the symptoms of chronic enteritis were aggravated, and on the 10th, she fell into the last state of *mirasmus*. Martin Solon attributed to gastro-intestinal lesion this fatal termination.

Post mortem examination made by M. Grissolle, a distinguished pupil of the hospital, fully justified his diagnosis. These are the anatomical lesions I have been able to establish : the large intestines, the small intestines, the cœcum itself, presented in their whole extent, but above all, near the ileo cœcal opening, a number of ulcerations large and deep, having red and irregular edges ; the coats of the small intestines, the jejunum in particular, were so thin they were transparent, and had so little consistence that the slightest traction was sufficient to tear them.

The liver had acquired an enormous size, and only offered the appearance of a fleshy mass, which we generally call liver flesh.

The right lung presented a great number of miliary tubercles, some in a state of suppuration ; the superior and middle lobes had contracted on the back part, and laterally, adherences very intimate and quite extensive with the pleura costalis ; at the upper part there was a cavity large and deep, the anterior parietes of which had been entirely destroyed by the traction excited to destroy the adherences ; the posterior portion of the cavity remained adhering to the upper

ribs; it presented on its internal surface a membrane of a rose colour, like that lining the nasal cavity, and which M. Magistel, Martin Solon, Blanden and Serres, of Montpellier, present at the amphitheatre of the hospital of Beaujon, considered a mucous membrane of a new formation, resulting from the recent cicatrization of the cavity. It is known in tuberculous excavations we find a membrane produced, analogous to the mucous tissue which secretes pus constituting the matter expectorated. In this case the membrane was more dense, more smooth, and did not offer on its surface any purulent trace; its aspect almost resembled the pituitary membrane: it is this made it be looked upon as the result of cicatrization of the surface of the cavity, rather than a membrane destined for the secretion of pus. Beside, the complete cessation of purulent expectoration for many weeks fully confirmed this opinion.

Can we flatter ourselves to cure completely the two first cases, the history of which I have traced? If so, therapeutics would have made an immense stride. It is certain, however, I have under the influence of the vapours of Kreosote seen the cough diminish in frequency, the expectorated matter detach itself readily and without pain, the aqueous expectoration become condensed, change its puriformed aspect and assume the characters of homogeneous mucous, stringy or spumous. Observing nevertheless, when a patient has arrived at a tuberculous diathesis, the chances of success are against recovery. In fact, to change or destroy this general disposition of the system is not easy; it would be better early to prevent than combat it existing. If one of these pulmonary cavities could be cicatrized or placed in good condition, one or more other tuberculous masses would come again to enervate, again placing in danger the life of the patient. These fatal complications having already weakened considerably the whole of this important system of economy, local amelioration produced by recent cicatrization, is not sufficient to relieve the whole disorder. If by means of Kreosote the progress of the disease can be stopped, or healing induced, it does not follow it should possess the property of again giving the lost elasticity. It is evident this terrible disease carries in a short time deep destruction to the vital forces; such a point may then have arrived, rendering it impossible to reanimate the vital spark lost and extinct. Thus we should say with Ovid,

Non est in medico semper relevetur ut æger;
Interdum doctâ plus valet arte malum.

Whatever chances we are obliged to run, we must be persuaded art is not always without resource, as was evinced by the cicatrization of the cavity which occurred in the case of the young girl. With the desire and time, success is sometimes beyond our hopes; but if it would only prolong the days of the patient or allay pain, it would still merit praise from its disposition to heal. The oracle of Cosmology has declared for more than thirty centuries: *Divinum opus sedare dolorem*.

ENGORGEMENTS, INDURATIONS AND WHITE SWELLING.

Observation 1. Hautmatte, fifty-six years of age, was operated upon about two years since, for a cancer of her left breast. For ten months all the superior extremity on the corresponding side, was engorged, hard and painful, with loss of power. She was admitted into the hospital of Beaujon on the 14th of January, having with the œdema of the left arm a cancerous tumour in the axilla of the same side. The tumour was dressed with Kreosote ointment, and the whole arm rubbed. At the end of fifteen days the fingers were more moveable; the arm was supple without pain, all the movements were executed with facility; the tumour in the axilla was softened, and perceptibly diminished in size.

Observation 2. Conture, twenty-six years of age, was admitted into the hospital of Beaujon on the 9th of January, for an inflammation which he had for eight days on the right side of the inferior jaw; he had no decayed teeth. The engorgement commenced by the sub-maxillary gland, and had extended itself to the adjacent cellular tissue. Two applications, each of fifteen leeches, were made; they relieved the pain, but did not diminish the swelling. Fomentations and cataplasms of Kreosote were applied: excessive smarting was experienced for eight or ten minutes. In two days it was sensibly better. On the 18th of January, fluctuation of small extent, but quite manifest, was felt around the sub-maxillary gland; four drops of pure Kreosote were applied, the fluctuation completely disappeared, extensive fomentations with the Kreosote were again resorted to: improvement continued. The application was stopped for one day (from want of Kreosote) the swelling returned. The 2d of February the patient was completely cured. The epidermis was destroyed.

Observation 3. Chuleix, twenty-two years of age, entered the hospital of Beaujon on the 17th of December, to place himself under

treatment for gonorrhœa, which diminished much by the employment of powder of cubebs ; but the disease continuing, attacked the testicle. On the 5th of January, he had an engorgement of the right testicle, it was the seat of active pain and considerable tumefaction. During seven or eight days extensive fomentation with acetate of lead were had recourse to, and cataplasms applied, both emollient and such as would bring about resolution ; these did not prevent the testicle from becoming four times its natural size. Fomentations and cataplasms of Kreosote were then used, they diminished the swelling and calmed the pain ; at the end of eight days the disease had almost disappeared, when the left testicle was attacked, became engorged, and in its turn painful, (general bleeding, leeches, and Kreosote cataplasms were resorted to.) On the 2d of February, the disease was relieved : there remained no trace of engorgement.

Observations 4, 5. I have seen Kreosote succeed wonderfully in two cases of venereal engorgement of the testicles, which were hard, tumefied and painful, by cataplasms and fomentations. In six days the swelling diminished ; three or four days after the testicles returned to their natural size.

Observation 6. A female, twenty-four years of age, of strong constitution, had in the axilla, on the left side, for many years a hard lymphatic tubercle, the size of a hazel-nut, painful when pressed upon. Martin Solon had endeavoured to heal it without effect, by the applications of leaches, cataplasms and preparations of iodine : the tumour had not, for many months, undergone any change. Cataplasms of farina of rice, impregnated with water of Kreosote, were used ; sharp pain was experienced, the skin became red, a collection of lymphatic vessels inflamed, extending themselves from the tubercle towards the elbow ; some drops of suppuration formed in the tubercle, and it opened outwardly : the small opening cicatrized. The tumour still maintained half its size, applications of cataplasms of Kreosote were continued ; the remainder of the engorged tubercle was dissipated completely, and after being under treatment five weeks she was completely cured.

Observation 7. Martin Solon, without effect, had endeavoured to discuss a venereal bubo by many applications of leaches, cataplasms, linseed and rice poultices, baths, frictions, and the preparations of iodine. The suppuration, first infiltrated, began to be connected with heat ; he prescribed wetting the cataplasms with water

of Kreosote, and renewing the dressings twice a day. On the second day the tumour was less elevated; the fourth, there was no more fluctuation; and in some days, what remained of the tumour, was completely discussed.

Observation 8. A child of a scrofulous constitution, suffered for a long time from a white swelling on the great toe; the tumefaction was considerable—motion could not be made but with difficulty and pain; there was no ulceration. M. Goupi told me he discussed it completely, by applications of water of Kreosote. Is success to be attributed to the Kreosote in this case? Ought we not to believe the disease receded?

SUPPURATIONS, ULCERS OF DIFFERENT KINDS, FISTULA AND CHILBLAINS.

Observation 1. A little girl named Martin, living in Marivaux street, No. 23, had a stubborn and very disagreeable suppuration in the passage of the meatus auditorius externus of the right ear. On the 17th of December, 1833, M. Bertholet instilled some drops of Kreosote water into the ear; two days after the suppuration ceased and has not returned.

Observation 2. Mrs. Cristin, at No. 60, St. Martin street, was operated upon by M. Bertholet, on the 17th of November, 1833, and a tumour, the size of an egg, extracted from the left side of the rectum, in which she experienced violent pain. The extraction of this tumour from the vicinity of the anus, rendered necessary a considerable loss of substance, and brought on a suppuration so abundant, that the strength of the patient was much reduced: the wound, moistened incessantly, by the mucus from the rectum, cicatrized with difficulty. On the 16th of December, recourse was had to Kreosote, pure and its solution in water: it fulfilled, in a short time, the indications expected; it diminished the suppuration, and promptly cicatrized the wound. In fact, three hours after the dressing, there was scarcely any discharge of pus; the wound changed its appearance, and though it was very large and in an unfavourable condition, necessarily bathed by the intestinal mucus, it nevertheless cicatrized entirely at the end of twenty-seven days. From the moment when the suppuration ceased, Mrs. Cristin regained her strength. Now she experiences no weakness: she is perfectly cured.

Observation 3. Doctor Colombat, of Isère, communicated to the Academy of Sciences some observations, in which he stated his having employed Kreosote with success, in a case of sanious ulceration of the neck of the uterus. He made use of it in solution, composed of one part of Kreosote, and ninety parts of water: dossils of lint, imbibed with it, were placed twice a day on the ulceration, by means of a speculum. He assured me at the end of fifteen days, the ulcerations were covered with healthy granulations; and, after five weeks of this treatment, complete cicatrization was induced. This case is rendered more remarkable, on account of the most systematic means, many cauterizations, and even an anti-venereal treatment having been resorted to without success, by two celebrated physicians of Paris. M. Columbat observed the application of the speculum being painful, he could not have recourse to it for three days. It was by injections of about an ounce of solution of Kreosote, he completed the treatment. The first injections caused heat and considerable pain, which only lasted an hour.

Observation 4. A clerk of Mr. Couture, residing in the avenue from Petit-Saint-Antoine, had, since 1823, on the left leg, a varicose ulcer with callous edges, about the size of a five franc piece. For two years, M. Bertholet treated this ulcer without success. On the 10th of December, 1833, he applied on the sore, cotton steeped in water of Kreosote; some drops of pure Kreosote were instilled from time to time, to augment the activity of the tissues. The supuration and the unpleasant smell disappeared immediately after the first application; at the end of some days, a light pellicle formed, extended itself progressively over the whole surface, and on the 22d of January, 1834, the whole was cicatrized.

Observation 5. M. Coster has employed Kreosote with success in a case of inflammation of the free edges of the eye-lid, accompanied from many points by small suppurating ulcers, by touching them twice a-day with a camel's hair pencil, dipped in an aqueous solution of Kreosote. The cure, uselessly attempted for two years, was complete at the end of ten days. I saw the patient, and can declare there remained no trace of inflammation.

Observation 6. Gousset, locksmith to the Batignoles, living in the street des Dames, No. 39, had, for twenty-five years, a large ulcer occupying the whole malcolus externus of the left leg. All the surface of the ulcer and the adjacent tissue, presented a degree of *nérescence lardacée*. The ulcer had been dry for some time, and

the pains so insupportable, the patient declared he had often been near destroying himself. Dr. Kunckel applied, every twelve hours, pure Kreosote on the diseased parts. At first the patient experienced no sensation, after a time shooting pains were felt, an abundant serous discharge was established. The quantity of the Kreosote was gradually diminished; the dressings were made with Kreosote water; in a little time the *lardacée* products were destroyed, and the ulcer progressed towards cicatrization, which is now complete.

Hypolite Cloquet, who has endowed science with some excellent productions, assured me he had employed Kreosote with success in many cases of cancer of the uterus. This preparation appeared to him to hasten cicatrization of a certain number of suppurating ulcers, the aspect of which remained stationary under the influence of other curative means.

Doctor Tealier read to the Society of Medicine, a memoir containing many observations on the advantageous application of Kreosote in certain diseases of the neck of the uterus.

M. Goupil has communicated many observations on ulcers of the legs, large and deep, with edges hard and callous, their appearance livid and somewhat white, which, resisting various other means, had yielded in very little time to the action of Kreosote.

Many chilblains on the feet and hands, with or without suppurating cracks, were cured by applications of pure Kreosote, and by frictions with Kreosote ointment. The inflammation diminished, suppuration was checked, crusts were formed which fell off; in a few days the cure was complete.

Observation 7. Mrs. C——, forty years of age, of a pléthoric habit, living at No. 5, Cerisaie street, had for many years on the right thigh, a deep abscess; following it there remained a fistula, difficult to heal. This fistula had two openings prevented from healing by the sanious discharges; in calculating its extent, it would receive about two ounces of water, before the fluid would pass out at the opposite orifice. In consequence of the stiff and dense diseased texture, there existed a false ankylosis; the patient could only walk with the limb extended. After injections of water of Kreosote, she felt lancinating pain, and it became necessary to combat the too great inflammation by leeches. After four months treatment, the internal extent of the fistula was so much diminished, it would only admit a small quantity of fluid, the skin became supple, the *lardacée*

cés diminished, movement returned in the knee, one of the orifices of the fistula healed, and now the patient is cured.

TOOTH-ACHE AND CARIES.

M. Regnart, surgeon dentist, Dauphin street, in Paris, told me of his having seen thirty or forty cases of decayed teeth, accompanied with violent pain, in which the application of pure Kreosote acted like enchantment. A case he related should be reported here :

Observation 1. Professor Brussais experienced for several days, violent pain caused by a decayed tooth ; he desired the assistance of M. Regnart, who presented the Kreosote as the best antidontalgic ; this determined him to try its application. The tooth for two or three minutes was the seat of a lively burning sensation, succeeded by the most perfect calm. M. Brussais found so much relief from this first application, that after some days he again had recourse to it with benefit against the return of pain.

Observation 2. M. Berthelot was called on the 10th of January 1834, by Mrs. Lamy, No. 5, Vielle-Mounaie street. Her case proved to be violent pain in a decayed tooth. He placed cotton wet with pure Kreosote into it, and the pain ceased. On the following day she again experienced pain caused by another tooth ; the same means were employed, and the pain relieved almost instantly.

Observation 3. I had since the month of January, in the upper jaw, a carious tooth ; it caused me from time to time such violent pain, mastication became impossible ; the gum corresponding was tumefied, very red and painful ; the inflammation extended sometimes to the centre of the palate. Towards the first of March I began to apply small balls of lint wet with Kreosote ; I continued this application until April the 23d, with the view of ascertaining its effect. I can declare the cessation of pain follows immediately the application of Kreosote, and the inflammation of the gum disappears on the morning after an application made on the previous day. I must say, however, caries has not been prevented from pursuing its ravages ; I doubt whether Kreosote can ever check the progress of this morbid work.

When the teeth give us pain, almost always the nervous pulp is exposed to the air, or comes in contact with other external agents. If some drops of pure Kreosote are applied to the carious tooth, it produces at first active exaseration, and afterwards cessation of

pain. Can the pulp be destroyed as by caustic, without any of the adjacent parts undergoing any sensible alteration ; or does the Kreosote coagulate the albumen of the blood almost always found in carious teeth, forming thus an albuminous covering, and preventing the nerve from being exposed to the air ? This last opinion appears to me most rational. If the nervous pulp is cauterized and destroyed, why is it that at the end of one or two days the pain is again felt ? The prompt recurrence of the pain seems to depend on the destruction of the albuminous covering, occasioned by the efforts of mastication or other causes, placing the nerve in the same condition as before the application of Kreosote.

RECENT WOUNDS AND HÆMORRHAGES.

Observation 1. A carpenter, No. 33, Arcis street, on the 18th of January, made a deep wound on two of the fingers of his hand ; cotton wet with Kreosote arrested the hæmorrhage instantly, and the wound cicatrized in five days without suppurating.

Observation 2. Mrs. Nure, No. 6, Arcis street, on the 11th of January, cut the ring finger of the left hand ; a piece of the integuments, half an inch long, was nearly detached ; it was replaced, and cotton wet with water of Kreosote applied. On the 15th of January, the wound was cicatrized, without having suppurated.

Observation 3. I made on the thigh of a dog, two incisions, equally long and deep. The blood from the left side, after having flowed freely for two or three minutes, was instantly arrested by the instillation of three drops of pure Kreosote into the incision. The wounds were of an elliptical form ; the greater axis was two inches, and the smaller a half an inch. I will now give the manner of dressing them : I did not make immediate reunion ; I applied on the wound of the left side a compress spread over with simple cerate, and again covered the pledget with lint, wet with the water of Kreosote : the wound on the right side was dressed in the same manner, except the lint was wet with a solution of chlorate of sodium ; at the end of four days, the wound on the left thigh had already ceased to suppurate ; but that on the right side still discharged purulent matter, which was not arrested until eleven days after the first dressing. It of course may be imagined, the first had advanced far beyond the second in the process of cicatrization.

I have repeated the same experiments on wounds with loss of

substance, and have always observed the suppuration was longer and more abundant under the influence of chlorine than Kreosote.

Observation 4. Dettiége, thirty-six years of age, was admitted into the hospital of Beaujon, for jaundice complicated with ascites. Some days after his admission, cups were applied; one of the scarificators being too deep, an abundant hæmorrhage followed; it was suppressed, but returned at intervals: recourse being had to pure Kreosote, it was completely arrested.

I have seen the bites of leaches occasion considerable hæmorrhage; when the usual means of stopping them have proved unsuccessful, Kreosote has succeeded wonderfully.

Observation 5. A child, twelve years of age, in presence of whom I expressed a desire to see a cut for the purpose of arresting the flow of blood, made in an instant, on the index finger, an incision at least three lines in length, which he presented to me with a proud and courageous air. Two drops of Kreosote suppressed immediately the hæmorrhage; after five minutes the edges of the wound were joined so that the trace of the cut could scarcely be seen.

Observation 6. I cut the two ears from a dog, and treated them comparatively with water of Kreosote and common water; the Kreosote still showed in this case its hæmostatic properties: the fresh water produced no effect.

Observation 7. This case of hæmorrhage is quite remarkable. Having cut off the tail of a cat, much hæmorrhage ensued during eight or ten minutes. Desirous to know if the discharge would stop of itself, I did nothing for sometime to suppress it; at last, on going to apply some drops of Kreosote, I found the blood, in place of exuding from minute vessels, formed a jet like bleeding from the arm; the Kreosote was not sufficiently powerful, while the jet continued, to arrest it. I interrupted it for some seconds by light pressure on the tail, which was dipped into Kreosote; in a few minutes the hæmorrhage was suppressed and did not again return.

I have seen many cases of solution of continuity and wounds with loss of substance, causing abundant hæmorrhages, yield almost as soon as Kreosote water, or pure Kreosote was applied.

SUCCEDANEUM OF KREOSOTE.

Doctor Bland, on witnessing the virtues of Kreosote, thought he had discovered a succedaneum in soot: an ointment composed of lard and soot reduced to fine powder, appeared to him an excellent

remedy for inveterate tetter, scaldhead, and favourable above all for ulcers of bad character, &c. He employed the soot in lotions and in fomentations for diseased ulcerations, and in cases of inveterate fistula, by injections.

M. Goupil communicated a case of impetigo of the scalp, cured in an infant five years of age, by the use of lotions and an ointment of soot, made according to the prescription of the physician of Beaucaire.

M. Carron du Viellars published in the Medical Gazette, some favourable cases from the employment of soot in diseases of the eyes; M. Baudeloque, physician to the hospital *des Enfants*, has also spoken in its praise as being good in scrofulous ophthalmia.

Prescription of M. Carron du Viellars.

Take Soot, $\frac{3}{4}$ ij.

Dissolve it in boiling water, filter and evaporate it to dryness.

The residue is dissolved in very strong boiling white vinegar, with the addition of 24 grains of extract of roses to every xii. $\frac{3}{4}$ of the fluid. A few drops of this solution in water forms a good collyrium.

CONTRARY CASES.

I have collected with much care the cases and observations not tending to confirm the good effects of Kreosote; persuaded, in order to appreciate in a precise manner the results obtained from administering any medicine, it is necessary to place the successful effects on a level with the unsuccessful, and thus learn by attentive examination, the rank it can aspire to in the therapeutic scale.

I have employed Kreosote, without benefit, in three cases of hæmorrhage, caused by complete section of blood vessels of considerable size, and in two other cases in which there was simple incision of the same vessels; thus I am far from believing it possesses all the hæmostatic virtues its inventor acknowledged, and that it merits, as M. Reichembach said, the greatest attention from the government and from military authorities.

M. Lesseré found it unsuccessful in the treatment of syphilitic blotches of the skin.

M. Breschet used it for a cancerous ulcer of the nose. The day after its application, the ulcer changed its appearance and was

cleansed : it was much better, but only remained so a few days ; the ulcer was stationary a short time, but now continues its ravages.

M. Goupil cites two unsuccessful applications of Kreosote in cases of fistula, communicating with caries of the bone. The Kreosote injections in these cases revived the fistulous passages to such an extent, as to produce slight sanguineous discharges.

From the account given by the physicians of Germany, it is doubtful if Kreosote can arrest the progress of this morbid action.

Martin Solon had under his care, in the month of November, 1833, five patients having phthisis with established cavities in the lungs. They used, by means of Woulf's bottle, fumigations prepared with eight ounces of water, and from twenty to sixty drops of water of Kreosote, without any sensible effect. This want of success, says M. Solon, does not weaken the advantageous results collected in Germany ; there the atmosphere of the room was abundantly loaded with a profusion of vapour, more than we could employ, on account of the small quantity of Kreosote placed at our disposal.

I have seen some chronic pulmonary catarrhs and some tuberculous diseases, pursue their unfavourable degrees, under the continued employment of Kreosote.

MANNER OF USING IT.

In the use of Kreosote, a certain course should be pursued, in suitable relation to its nature and activity. It is necessary to keep it within just bounds, between an action too strong and an action too weak, determined by the changes and progress of the healing.

My observations have demonstrated, says M. Reichembach, that for healing certain ulcers, tetters and wounds, the water of Kreosote often has been applied with success ; but we must remember, as the water only holds in solution about one eightieth part of Kreosote, there are stubborn cases requiring a more powerful action. We are then obliged to have recourse to pure Kreosote, which if employed to a certain extent, causes slight inflammation, but it is soon relieved ; for this reason our physicians stop the employment of Kreosote on the ulcers, as soon as the inflammation is decided, and leave the wound at rest during some days ; afterwards, they again apply Kreosote, and if the inflammation again shows itself, it must be arrested ; they continue thus until the greenish coloured pus changes to white, and the flesh at first blue or white, becomes red, and the diseased parts placed in a state for healing.

Many reason, that as Kreosote has much tendency to produce inflammation, they prefer employing it with energy on ulcers in the commencement, without regarding the pain; it being only great during a short time. This pain is also much less violent in the commencement; it increases in time in proportion as the Kreosote causes the return, in diseased parts, of a new vitality; thus we will do well to act with vigour in the beginning, in order that the patient may support readily the remedy. When by energetic treatment, the bad character of the ulcer is overcome, when it has assumed a healing red colour, when granulations of a healthy nature are formed, we may be content to make applications of ointment or water of Kreosote, or may endeavour to favour healing by other dessicative means, without employing ulteriorly this substance.

Kreosote has been employed, sometimes pure and sometimes mixed with water, in all cases where there is ulceration, formation of enlarged productions, discharge of pus of an unhealthy nature, &c.: some drops are placed on emollient or resolute cataplasms. In hæmorrhages, it may be applied drop by drop; but its effect is more sensible when applied on cotton or lint.

For lotions or frictions, it is mixed in the proportions of two, four or six drops in an ounce of distilled water, or in the same quantity of hog's lard. For internal use, one or two drops have been given in a julep of four ounces. We can, by means of evaporation by caloric, or simply with sheets of paper or compresses wet with Kreosote, form in the room or bed of a patient, an atmosphere of Kreosote. It may also be introduced by aid of an apparatus, such as Woulf's bottle, advantageously modified by Richard Desrues, pharmacien at Paris.

MODE OF ACTION.

How does Kreosote act? This question to me is of but little importance; I present facts observed, and deduct from them consequences; this is my only end. I leave every one to explain as he may understand them. The ignorance of the world as to the action of this medicine ought not to prevent us from enjoying its benefits. We do not know how sulphate of quinine, mercury, camphor, &c. act; yet many diseases are cured by the employment of these substances. It would well suffice to know the effect of the therapeutic agents we daily employ; it is difficult, however, to overcome the desire of knowing by what mechanism we arrive at certain ends.

How is Kreosote hæmostatic ? This action appears to me evidently due to the property it possesses in a high degree of promptly coagulating albumen. In hæmorrhages, the suppression of the flow of blood is purely mechanical; if, after having carefully wiped away the blood from the surface, Kreosote is applied before it has had time to reappear, we do not prevent it from escaping from the texture; it still flows until a thin transparent pellicle, formed by the agglutination of small particles of coagulated albumen, opposes an insurmountable obstacle.

The same mechanism perhaps presides over the cicatrization of ulcers and suppurating sores. A more considerable afflux of blood is determined to the part, owing to the new vitality excited by the Kreosote; it establishes the work of organization more rapidly; then coagulable lymph forms a protecting envelopment over the whole extent of the ulceration; the granulations approach each other; afterwards unite; the secretions are less and less abundant; the pus becomes healthy, and from the edges cicatrization progresses towards the centre.

It is certain it destroys rapidly fungus granulations, hastens the separation of aphes and crusts covering the surface of certain wounds. Can we not admit by irritating the part on which it is applied, it there excites an eliminating operation, and by the formation of an albuminous pellicle, it establishes a line of demarkation between the living texture and the anormal products, the separation of which will soon take place, when they lose their vitality? Some practitioners to whom I have communicated this explanation, think it reasonable.

How does it ease expectoration in pulmonary catarrh and in phthisis? In old syphilitic ulcers, is it only disposed to cicatrize, or does it possess, according to the opinion of some physicians, an antisymphilitic property? These are questions of the highest interest; we should not enter upon them but with great reserve; their solution will remain doubtful until by multiplied experience, some light is thrown upon this subject.

—————In cunctis certas inquirere causas
Difficile est.———

Fracastor, Syphil. lib. 1.

In the mean time, let us suppose Kreosote to be introduced into the pulmonary organs, or carried into the stomach; it reacts on the

lungs, exercising perhaps on the ulcerations of this tissue, the same modification as on external ulcers.

It may be deduced from the preceeding observations and facts, that Kreosote possesses a very energetic medical property in many cases. I am not so exclusive, however, as to believe there is but one rational course to follow. I am convinced each disease comes from different causes ; the treatment to be resorted to, should equally vary. It is for medical acquirement to choose which seems the most suitable. Kreosote so appears in the treatment of the diseases, the histories of which I have traced : we must make it always undergo the modifications experience demonstrates as necessary.

In the mean time, from ulterior proofs our informed observers have assigned to Kreosote the rank which it ought to occupy in therapeutics from the facts ; what now can be its pretensions.

1. Kreosote produces good effects in burns of different degrees.
2. It heals in general ulcerated, furfurescent, squamous and crustaceous tetter.
3. It cicatrizes inveterate ulcers, arising from a syphilitic state of the constitution ; it stops or diminishes the suppuration and destroys proud flesh, without altering in the least the adjoining texture.
4. It is useful in phthisis ; not that it destroys the tuberculous concretions, which in the hard or soft state, act as extraneous bodies in the lungs, and become, if they are numerous, the cause of irreparable disorder ; I wish only to say in cases of phthisis, it facilitates expectoration, to which it gives a favourable shade, and that it can cicatrize ulcerations of the bronchia, and some excavations of the parenchyma of the lungs.
5. Tumours, chronic indurations of the lymphatics, œdematous infiltration into the sub-cutaneous cellular tissue, are often terminated by resolution under the influence of Kreosote fomentations.
6. The success obtained from Kreosote in the cicatrization of fistulous passages, led me to presume, in case of blind external fistula, it might be tried advantageously, previous to the operation.
7. It almost always succeeds in calming the pain occasioned by carious teeth, but does not prevent its return ; it will not stop the destruction of the teeth ; its only effect on them is temporary.

8. It is certain, as a hæmostatic, Kreosote is a precious application; but it must be remarked, it is only efficacious in capillary hæmorrhage, and bleeding from vessels of small caliber. Error in this particular should be avoided; the action of Kreosote in like cases is altogether mechanical.
9. Kreosote ought not to be employed in a continued manner; far from being useful, it aggravates the complaint, occasioning violent pains. It answers well to alternate with other applications; often with emollients, seldom with resolutes. Premature repelling by it may produce fatal consequences.
10. Finally, it produces decided relief, and sometimes unexpected cures, even when all other means have failed.

I cannot flatter myself with having treated, to all the extent of which it is susceptible, this interesting subject, by delivering for publication, this weak result of my researches and particular observations. I have no other object than to call the attention of practitioners towards a medicine, I believe preferable in certain cases, to those employed. Such, at least, is the opinion suggesting itself to me from the observation of facts; happy, if it is participated in by my fellow members, and more happy still, should it be confirmed by experience. Some assertions appearing to me exaggerated, I searched into facts, and reduced them to their just value; persuaded, as says one of our experienced physicians, that it is the duty of all conscientious men and friends of truth, to declare with impartiality, all that can be useful or hurtful to science or to humanity.

THE END.



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